FACTORS THAT DELAY ACTIVE CONSTRUCTION PROJECTS AND POTENTIAL SOLUTIONS

Certified Public Manager Research Project

South Carolina Department of Transportation

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February 1, 2006

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I. Introduction

South Carolina is the 11th fastest growing State in the country, outpacing the nation overall in terms of major economic indicators. Recognizing that the State's economic performance is strongly linked to its transportation network, the South Carolina Department of Transportation (SCDOT) in recent years has been faced with the challenge of how to keep pace with its transportation needs. In addition to meeting demands for new roads to serve growing areas of the state, SCDOT maintains the 4th largest highway system in the U.S., which includes 42,000 miles of State highways and 800 miles of Interstates. Traditional highway funding sources on a pay-as-you –go basis have been insufficient to finance needed highway improvements.[1]

SCDOT is currently pursuing a $5 Billion construction program with more active constructive work being administered than at any time in its history. With this aggressive program, it is imperative that the department constantly pursues more effective ways to complete their projects on time. Delays to active construction projects cause contractor claims for additional time and compensation. The cost to the traveling public for an uncompleted construction project is significant and user delay costs increase exponentially as traffic congestion increases.

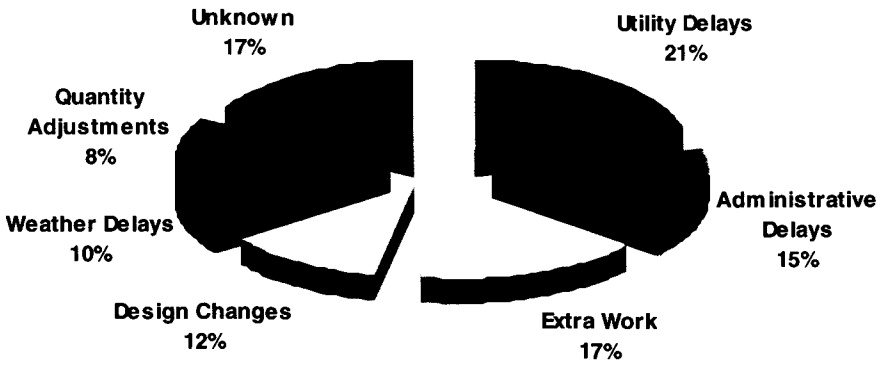
This project was chosen to identify the reasons why delays have occurred to active construction projects and explore potential solutions to these problems. SCDOT's Strategic Plan includes goals to reduce the number of contracts more than 25% behind schedule by June 2007. In addition, the Strategic Plan has a goal to reduce average

[1] Utility Involvement in South Carolina Design-Build Projects; U.S. Department of Transportation; Federal Highway Administration; www.fhwa.dot.gov/programadmin/contracts/scdb.htm.

contract time extensions for completed projects by 5% each year. An aggressive plan to identify the problems that cause these delays and analyze possible solutions is the first step to achieving the goals set forth by SCDOT.

There are 6 major reasons why construction projects have been delayed in South Carolina as described below. This information is available on SCDOT's SiteManager database. This database is the tool used by SCDOT to administer all active construction projects in South Carolina. This is a very useful tool to the department because it enables SCDOT to track projects in a number of ways. Contract extensions were analyzed through SiteManager and reasons for these extensions were categorized and described below.

Construction Project Delay Factors
Table 1



The most significant delay to construction projects is Utility Delays, representing 21% of all delays to construction work in South Carolina. Due to the magnitude of the 7

delay factors represented in Table 1, the scope of this research has been refined to study the delays caused by Utility relocations and how these delays can be addressed. The scope of this research will also include significant items that the contractor has within his control. Many of the delay factors listed in Table 1 can be improved upon by addressing issues that are within the contractor's control.

South Carolina Department of Transportation (SCDOT) District 3, which includes Anderson, Greenville, Oconee, Pickens and Spartanburg counties maintains a large construction program due to the many urban areas in the district. This district currently has approximately 100 active projects underway with a large percentage of these being multi-million dollar construction projects. District 3 was analyzed in this research to address SCDOT construction delay issues.

II. Utility Questionnaire.

One of the methods used in this research to identify which utility companies cause the most significant delays was a poll issued to the Construction Engineers in District 3. This poll was an SCDOT Utility Questionnaire involving 22 different multi-million dollar construction projects in the district. This questionnaire is shown in Appendix A.

Engineers were asked to evaluate the major utility companies on these projects on 10 success criteria including *Timely Utility Agreement Submittal, Location of Existing Lines, Participation in Partnering, Timely Utility Relocation, Project Cost Impact, Project Organization, Environmental Impacts, Traffic Impacts, Quality Finish Product and Utility Agreement Closeout.* These 10 success criteria are the major areas of utility relocation work that affects road construction progress. Each of these success criteria was developed as an objective question that can be substantiated by back up documentation.

The rating scale is 1 to 5 with 5 being the highest rating and 1 the lowest with 3 as an acceptable mean. Each of the questions specifically explains what is required to receive each numerical score to further reduce the possibility for human bias. The purpose of this questionnaire was to study the average rating over all 22 projects for each of the major utility companies on the 10 success criteria mentioned above. This information will provide valuable insight to address the problems that are repeatedly occurring on projects. The results of the average of each success criteria shown below are displayed in bar chart format in Appendix B.

Timely Utility Agreement Submittal. The first question, *Timely Utility Agreement Submittal*, is a key element needed to ensure the timely relocation of utilities. As the chart shows in Appendix B, only 3 of the 18 utility companies evaluated achieved an average 3.0 rating over the 22 projects (pg.24). In order to achieve a 3.0 rating on question 1, a utility company must submit their relocation sketches to SCDOT between 0 and 60 days before the project letting date. This is a disturbing trend given the fact that the pre-construction utility phase is such a vital part of eliminating utility delays.

Location of Existing Lines. In Question 2, *Location of Existing Lines*, the utilities fared much better than in the first question. 15 of 18 companies exceeded the 3.0 threshold that is considered an average score (pg.25). In order to achieve a 3.0 here, the utility must accurately locate their existing lines on the ground and keep their marks updated.

Participation in Partnering. Question 3 is an important question to SCDOT because it determines the utility company's willingness to cooperate and work with contractors and the department. SCDOT has adopted a Partnering philosophy on all construction

projects in the state. Partnering is not a legal document executed by the department, its contractors or utility companies. However, it is a mindset that has been adopted in which all parties will agree to work together to achieve a list of common goals set forth in a Partnering Conference that is scheduled when the project begins. Question 3 showed a less than average performance by utility companies at Partnering conferences in District 3 with only 7 of the 18 companies reaching 3.0 (pg.26). A 3.0 is achieved on this question by sending an informed representative to the partnering session.

One of the successful parts of the partnering session is the escalation chart that is established at the partnering conference. This identifies the responsible party at each level of authority for SCDOT and the contractor. It also identifies the maximum time allowed for each of these levels to make a decision before escalating it to the next level as well as the maximum spending authority each level has. It would be a great benefit to SCDOT and the contractor if the affected utility companies involved in the construction projects participate in the escalation chart as well. This would help establish clear levels of authority for each level and make the utilities feel more a part of the process.

Timely Utility Relocation. Questions 4 and 5 represent the most important part of the questionnaire. In order to achieve a 3.0 on question 4, *Timely Utility Relocation*, the utility must complete their relocation efforts in order to avoid delaying the contractor's CPM schedule. The CPM (Critical Path Method) Schedule is the document that the contractor presents to SCDOT at the Partnering Conference that outlines the method he plans to use to complete the project. It identifies the critical items of work that cannot be delayed if they plan to achieve the desired completion date. If a utility company delays

this critical path on the contractor's schedule, he fails to receive a 3.0 score. Only a disappointing 7 out of 18 utility companies met this 3.0 average goal (pg 27).

Project Cost Impact. Question 5 is similar to question 4 but it represents not only a time delay to the contractor but also a cost delay to the contractor or department. This question is a more serious issue in the fact that this issue causes extensive delays to the schedule that triggers delay claims issued by the contractor to SCDOT. Again, only 6 out of 18 companies reached the 3.0 average score (pg 28). A 3.0 is achieved on Project Cost Impact by completing relocation efforts in time to prevent any contractor delays that may affect cost on the project.

Project Organization. *Project Organization* measures a utility company's ability to organize their workforce to adequately staff the relocation effort. The group performed fairly well in Project Organization with 13 of 18 reaching the 3.0 score (pg. 29).

Environmental Impacts. *Environmental Impacts* in question 7 and *Traffic Impacts* in question 8 may not directly relate to a company's performance in relocating in a timely manner. These questions relate more directly to the utility company's housekeeping effort. *Environmental Impacts* is a crucial measure to the company's success. This measures the company's ability to contain their silt and other land disturbing activities within the confines of their workspace and contributing to no offsite impacts to streams or other water bodies. SCDOT along with SCDHEC consider the environmental impacts on a project to be top priority. The utility companies rated extremely well in this area with all 18 well exceeding the 3.0 score (pg. 30). A company achieves a 3.0 score in this area by addressing all significant erosion control deficiencies in a timely manner.

Traffic Impacts. *Traffic Impacts* relates to producing minimal traffic control deficiencies and correcting them in a timely manner. SCDOT expects all contractors working within state rights of way to perform all construction work in accordance with SCMUTCD (South Carolina Manual for Uniform Traffic Control Devices). This guide gives all contractors, including utility contractors, a specification to go by while working around traffic. As in question 7, the group performed exceptionally well in this area with 16 out of 18 meeting or exceeding the 3.0 score which is achieved by producing minimal traffic control deficiencies and correcting them in a timely manner (pg. 31).

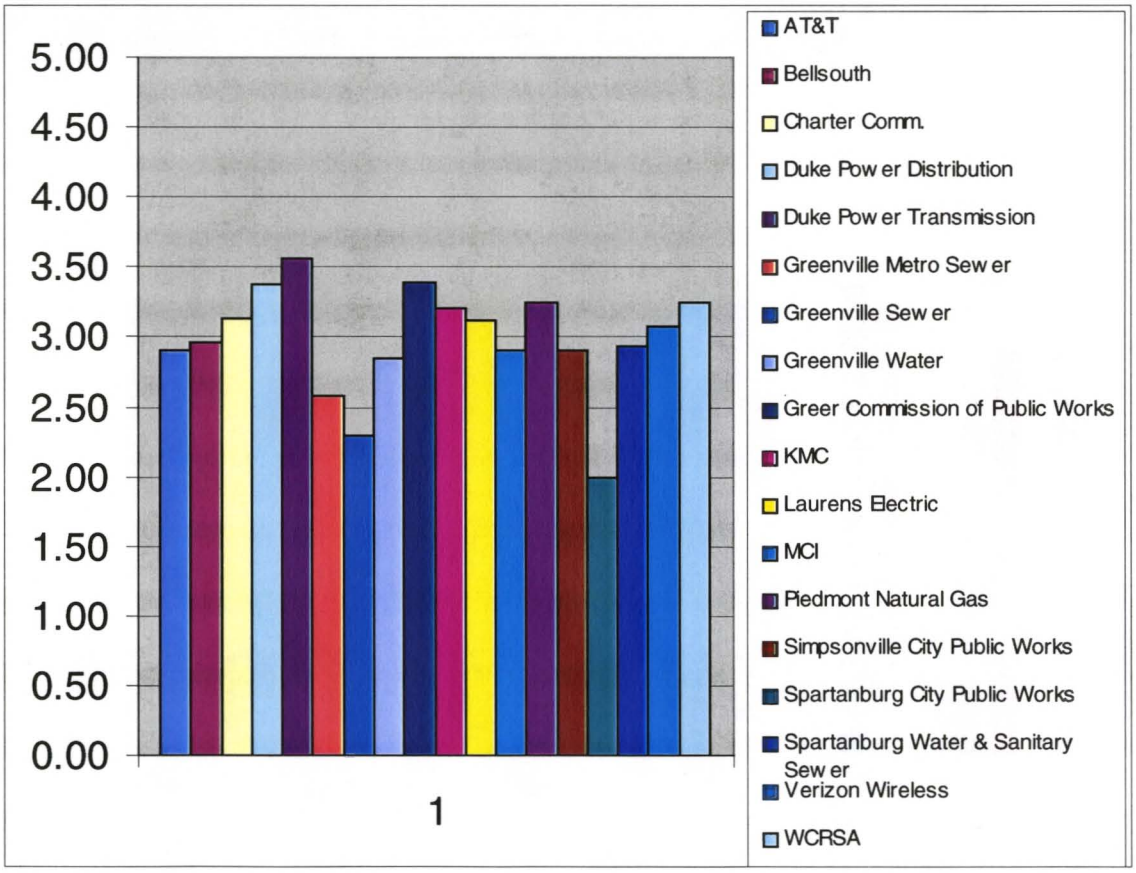
Quality Finished Product .A *Quality Finished Product* is always an important factor in the success of a construction project. As in questions 6 & 7, this question may not deal directly with preventing delays to construction. However, if a utility company performs work that is incorrect and requires rework, this can seriously impact a contractor's progress. The score for this item is very encouraging with 16 out of 18 meeting or exceeding the 3.0 score (pg 32). A 3.0 score is defined by producing a quality product that requires minimal rework that is addressed in a timely manner.

Utility Agreement Closeout . *Utility Agreement Closeout* in question 10 did not produce a full set of results as shown in Appendix B because a large number of the projects that were polled had not reached this stage. This closeout work is performed after all utility relocation work is complete. It doesn't impact the timely completion of the construction work. *Utility Agreement Closeout* is important to SCDOT in order to finish outstanding work and complete project closeout so the books may be closed on individual projects. This in turn frees up unspent federal money on these projects that can be used elsewhere. Out of 12 scores, 10 met the 3.0 expectation set forth in the questionnaire (pg.

33). A 3.0 is achieved by completing all closeout activities within 6 months of completion of the relocation work.

Average Overall Rating. An average overall rating was performed on the 18 utility companies to determine if there were any companies that repeatedly performed below expectations. 9 of 18 utility companies performed at or above 3.0 as shown in Table 2. This is a very low number because it represents not only the average score over 22 projects evaluated; it also represents an average of all 10 questions in the questionnaire.

Table 2 Average Overall Rating



III Subsurface Utility Engineering.

The problems indicated in the preceding paragraphs are not unique to South Carolina. Utility Relocation work is a nationwide problem that plagues the progress of road construction. Many innovative ideas have been implemented nationwide to address this ongoing problem and South Carolina is exploring many of these new approaches to timely utility relocation. One of the areas that South Carolina is exploring the use of is SUE. Subsurface Utility Engineering (SUE) is an engineering process for accurately identifying the quality of subsurface utility information needed for highway plans, and for acquiring and managing that level of information during the development of a highway project. Although SUE is primarily a preliminary engineering activity, the real benefits come during construction. Properly used, SUE prevents unnecessary utility relocations; eliminates unexpected conflicts with underground utilities; reduces contractor delays, subsequent claims and redesign costs; and enhances safety.[2] Subsurface Utility Engineering involves the use of non-invasive procedures to locate existing utilities such as high- pressure air jets that penetrate the ground to expose the top of the utility. The utility can then be located 3 dimensionally and the coordinates for this line are included in the construction plans to be included in the design phase.

IV. Inclusion of Utility Adjustments in Highway Construction Contracts.

Identifying the potential utility conflicts is the first step in the new innovative approach to utility relocation work. The next step is exploring ways to facilitate timely relocation efforts. Georgia Department of Transportation developed a policy where the water and sewer work may be included in the highway contract if the local government

[2] "Subsurface Utility Engineering: Enhancing Construction Activities," FHWA-IF-01-011, March 2001. http://www.fhwa.dot.gov/construction/fs01011.htm.

agrees to reimburse the Department for the full cost and if the request is received early enough in the project development process to be incorporated into the project plans.[3]

The beauty of this approach to utility relocation is the coordination it allows for the prime contractor in charge of the road contract. Incorporation of underground utilities into road construction contracts puts the prime contractor in charge of the timing of all relocation work. It also gives the contractor the flexibility to analyze the impacts each relocation has on the overall project and fosters the development of innovative thinking, which may prevent unnecessary relocation work.

Texas Department of Transportation has recognized the daunting task of managing utility relocation efforts to avoid construction delays. Transportation Research Board published the abstract cited below related to the effectiveness of combining utility relocation with highway construction projects. One major strategic approach that has emerged over the last 15 years is for state Departments of Transportation (DOTs) to combine utility relocation work with the construction contractor's scope of work, thereby eliminating or reducing some of the associated complications and risks. This combined approach is referred to in this proposal as the Combined Contractor Scope (CCS) approach. While many benefits can result from the CCS approach, it does have its disadvantages and own set of challenges. In addition, given the complications, there is a significant need for a decision support tool to provide guidance to TxDOT decision-makers as to when CCS should be applied. For example, TxDOT needs factual information and guidance on how to best "sell" the CCS approach to reluctant utilities.[4]

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[3] "Inclusion of Utility Adjustments in Highway Construction Contracts", Georgia Department of Transportation, Transportation Online Policy & Procedures System; Document 6863-10; 11/12/1980.
[4] Effectiveness of Combined Utility Relocation/ Highway Construction Projects; Transportation Research Board; http://rip.trb.org/browse/dproject.asp

While currently utilizing these innovative approaches to some degree, South Carolina could take a huge step forward in its approach to utility relocation by developing a guideline to determine when the Combined Contractor Scope for underground utility relocation work should be implemented as well as Subsurface Utility Engineering. These are valuable tools that can be utilized by the department but are not needed in all locations. This should be reserved for projects in the congested urban setting with multiple utility relocations required.

V. Design Build Projects.

One area that the Combined Contractor Scope and Subsurface Utility Engineering should always be used on is Design Build Projects. A Design Build Project differs greatly from a traditional project because it accelerates the project to construction in the quickest possible timeframe. On traditional projects, the department designs the project and then advertises the project to prospective bidders for construction. Design Build involves the department developing minimum design criteria for the project and then advertising the project to prospective Design-Build bidders. The successful Design-Build team would be responsible for design and construction of the roadway. This process accelerates the construction of the roadway because the successful contractor can begin building designed portions of the project as the rest of it is being designed. Although this process accelerates the construction activity, it can become a nightmare for affected utilities.

It is important for the department to include Combined Contractor Scope and Subsurface Utility Engineering into the Design Build process. This fact is made evident in the Utility Questionnaire that was presented to District 3 Construction Engineers as noted in Appendix A. One of the projects evaluated in the questionnaire was the I-85

Design Build Project in Spartanburg County. Neither the Combined Contractor Scope nor Subsurface Utility Engineering was included in this Design Build project as a responsibility of the Design Build team. On this project, the affected utilities all earned a dismal 1.0 score on *Timely Utility Agreement Submittal* and *Project Organization.*

Utility Relocation work was included in South Carolina's first two Design Build projects in the 1990's, Conway Bypass in Horry County and Greenville's Southern Connector. Both projects were very successful to a large part because the utility companies were brought into the process early on and established as a part of the team. Utility Relocation efforts were made part of these projects and contributed to their success.

VI. Contractor Questionnaire.

While Utility Delays represent 21% of all construction delays in South Carolina, the contractor has control over a large percentage of the delays that occur on construction projects as well. He must recognize items within his control and manage them effectively. A questionnaire was issued to 7 of the major Prime Contractors that perform road construction work in South Carolina to measure their effectiveness as a general contractor and solicit input from them on how they can improve their success. A copy of this questionnaire is available in Appendix C. 6 of 7 contractors responded to the questionnaire.

The most popular response when asked about outside obstacles that adversely affect their schedule was utility relocation work. Many of the respondents recommended including the underground utilities as part of the construction contract. Others recommended delaying the construction project until utility work is complete. Many

respondents wanted more responsibility on behalf of the utility companies. One such idea was requiring utility relocation schedules that bind the utility company if they do not meet the schedule they submitted.

A more probing question to the contractors was to identify areas within their control that they can improve on. Most all of the respondents explained that the most important resource to them is their workers. Maintaining a reliable skilled workforce was of paramount importance to contractors. One contractor had spent considerable time in northern states where a unionized workforce is commonplace and while stopping short of recommending a union workforce, he spoke highly of the training possibilities available to contractor personnel in this environment.

The questionnaire dug deeper into the workforce problem by questioning the availability of qualified subcontractors and (Disadvantaged Business Enterprise) DBE subcontractors. While most respondents felt that there were adequate subcontractors available to perform the work, they felt that qualified DBE subcontractors were hard to come by. The good DBE subcontractors are so busy with work that they are hard to get help from due to their popularity.

Contractor workforce training is critical for the Association of General Contractors (AGC) to consider as the highway industry becomes more and more complex. Workers from 50 years ago were adequately trained by merely mastering the field techniques necessary to construct a highway. While this training is still mandatory to develop a qualified construction foreman or field superintendent, many additional requirements are placed on their personnel from the technological advances we have experienced. Critical Path Method (CPM) Schedules are now required for all active contracts let to

construction. They are developed electronically and provide the department with a schedule that the contractor plans to use to complete the project. These schedules are very specific and require all of a contractor's resources to be loaded into the schedule and maintained. While this is a powerful tool for the contractor, there was a general consensus from the respondents in the questionnaire that this tool is only effective if all parties involved are properly trained in its use. SCDOT personnel are in the process of receiving training on the functions of CPM Schedules. The contractor's personnel who will be maintaining this software along with their project superintendents would benefit greatly from this training as well.

VII. Summary.

The growth of infrastructure in South Carolina shows no signs of slowing in the near future. With the continued growth we have experienced in the past several years, SCDOT must continue to explore new innovative ideas to complete projects on time. Utility relocation work is the most critical delay facing the highway construction industry in South Carolina representing 21% of all construction delays. SCDOT District 3 has analyzed the performance of 18 of the major utility companies in the upstate area on 10 success criteria. 9 of the 18 companies evaluated did not meet the expectations set forth in the questionnaire over an average of 22 active construction projects.

In 2006, District 3 will conduct individual partnering sessions with each utility company that consistently fell below the 3.0 average score to indicate areas where improvement is desired and discuss ways to improve in these areas. The utility company will be presented a brief report prior to the meeting indicating the trouble areas to give them a chance to research the problem. This report will include the success criteria where

they do not meet expectations as well as the region of the Upstate where they continue to have trouble and the Project Manager that administers the troubled projects.

SCDOT Utility office and Director of Construction office will be invited to these meetings as well as top-level representatives with the affected utility company. These meetings are designed to be a positive productive session to trigger much needed change in many areas as noted above. SCDOT could greatly benefit from utilizing the Utility Questionnaire in all districts in South Carolina. This report provides SCDOT with an objective reporting system that can be presented to Utility Representatives.

States are now using a number of innovative approaches to utility relocation work that has produced positive results. Subsurface Utility Engineering is being utilized more often at SCDOT and provides early detection of utility conflicts to minimize delays and unnecessary relocation costs. Combined Contractor Scope is an approach being used by many states including South Carolina in which utility relocation work is included in the highway construction contract. This provides much needed contractor control over the prosecution of the utility relocation work and prohibits the contractor from claiming for additional costs for delays because he retains ownership of the utility relocation effort.

Most contractors were very positive about the outlook of the highway construction industry in South Carolina. They promote a continued effort of cooperation and trust that has been developed through the joint committees of the SCDOT and AGC over the past few years. Most feel that this effort needs to trickle down to the field level on the contractor's side as well as the SCDOT side. Training at all levels within the construction community is paramount to the continued success of the highway industry in the 21st century.

VIII. REFERENCES

1. Utility Involvement in South Carolina Design-Build Projects; U.S. Department of Transportation; Federal Highway Administration; www.fhwa.dot.gov/programadmin/contracts/scdb.htm

2. "Subsurface Utility Engineering Enhancing Construction Activities", FHWA-IF-01-011, March 2001. http://www.fhwa.dot.gov/construction

3. "Inclusion of Utility Adjustments in Highway Construction Contracts", Georgia Department of Transportation, Transportation Online Policy & Procedures System; Document 6863-10; 11/12/1980.

4. Effectiveness of Combined Utility Relocation/ Highway Construction Projects; Transportation Research Board; http://rip.trb.org/browse/dproject.asp

5. SCDOT Director of Construction Office; Personal Communication from Director of Construction D. R. Shealy; Contract Extensions; June 17, 2005.

6. SCDOT SUE Manual; www.scdot.org/doing/suefiles/SUE_manual.pdf

7. I 85 Design Build Project Website; Design Build Utility Delays; www.scdot.org/projects/I85Travel/default.shtml

8. SCDOT SiteManager Database; Contract Extensions; Construction Delays; Main Panel/ Change Orders/ Explanations.

IX. APPENDIX A (UTILITY QUESTIONNAIRE).

SCDOT DISTRICT 3 UTILITY RATING FORM

RCE/ RCM _____
COUNTY _____
FILE NO. _____
ROUTE/ RD. _____
CONTRACT COST _____
CONTRACTOR _____

The following questions are designed to provide insight into the utility relocation process on this project. Please indicate your rating as to the effectiveness of each utility on this project using tangible evidence to support your response. Each response should objective and be based on the facts involved with this utility relocation. If you give a utility company a rating below (3), please provide back up data to support your score in the comments section below each question. If you give a utility company a rating of (5), please provide data to support this result as well.
If an answer does not apply, please indicate this in the comments section below each question.
Please indicate the Utility Representative or Engineer in charge of the field work for each company.
For Contract Cost and Utility Relocation Cost, please round off your cost to the nearest $1000.
To eliminate duplication of effort, you only need to fill in the Utility Repr. And Relocation Cost column on question 1 since this information won't change for the other questions.
If you type your utility company information in question 1, it will be repeated for questions 2 - 10.

1) Provides relocation sketches, utility agreement information, and/or no cost letter.
(TIMELY UTILITY AGREEMENT SUBMITTAL)

1) After contract award
2) After letting date
3) Less than 60 days before letting date
4) 60 - 90 days before letting date
5) Ahead of schedule and coordinates relocation effort during construction contract design phase.

Utility Company	Utility Repr.	Rating (1-5)	Relocation Cost

Comments: _____

_____

_____

2) Assists SCDOT in locating existing utilities to minimize conflicts with construction.
(LOCATION OF EXISTING LINES)

1) Does not participate in locating existing facilities prior to construction.
2) Reluctantly participates in locating existing facilities prior to construction.
3) Locates existing facilities on the ground accurately in 2 dimensions. (ie,PUPS)
4) Locates existing facilities on the ground in 3 dimensions including digging for a depth of line.
5) Provides accurate As Built Drawings of existing facilities in 3 dimensions prior to construction.

Utility Company	Utility Repr.	Rating (1-5)	Relocation Cost
0			
0			
0			
0			
0			
0			
0			
0			

Comments: _____

_____

_____

3) Actively participates in Partnering Session sponsored by SCDOT and the contractor.
(PARTICIPATION IN PARTNERING)

1) Does not attend Partnering Session.
2) Sends un-informed representative to partnering session.
3) Represents utility company at SCDOT partnering session.
4) Presents relocation plan to SCDOT at partnering session.
5) Coordinates relocation effort with contractor's schedule at partnering session.

Utility Company	Utility Repr.	Rating (1-5)	Relocation Cost
0			
0			
0			

0			
0			
0			
0			
0			

Comments: _____

4) Completes relocation of facilities in time to prevent contractor time delays to project.
(TIMELY UTILITY RELOCATION)

1) Completes relocation work causing more than 60 days of delay to the contractor.
2) Completes relocation work causing less than 60 days of delay to the contractor.
3) Completes relocation work in time to avoid delay to contractor's CPM schedule.
4) Completes relocation work ahead of schedule.
5) Completes relocation work ahead of schedule and before road construction begins.

Utility Company	Utility Repr.	Rating (1-5)	Relocation Cost
0			
0			
0			
0			
0			
0			
0			
0			

Comments: _____

5) Completes relocation of facilities to avoid a negative impact to the cost of the project.
(PROJECT COST IMPACT)

1) Directly contributes to contractor delay damage claims on the project.
2) Fails to complete relocation efforts in time which results in contractor working around affected utility.
3) Completes relocation efforts in time to prevent any contractor delays to the project.
4) Participates in time saving measures on construction projects such as early relocation.
5) Coordinates relocation efforts with SCDOT to achieve cost saving measures on the project.

Utility Company	Utility Repr.	Rating (1-5)	Relocation Cost

0			
0			
0			
0			
0			
0			
0			
0			

Comments: _____

_____

_____

6) Project Organization.

(PROJECT ORGANIZATION)

1) Fails to prepare for relocation work securing right of way, ordering materials, after SCDOT contract begi
2) Fails to follow through with commitments made with respect to deadlines for relocation efforts.
3) Organizes workforce to provide for adequate staff to handle utility relocation effort.
4) Coordinates with SCDOT contractor to prioritize relocation work to minimize impact to construction.
5) Anticipates delays and addresses them ahead of time including ordering materials, purchasing right of way, securing contracts with contractors before construction begins.

Utility Company	Utility Repr.	Rating (1-5)	Relocation Cost
0			
0			
0			
0			
0			
0			
0			
0			

Comments: _____

_____

_____

7) Performs utility relocation work with no negative environmental impacts to the project.

(ENVIRONMENTAL IMPACTS)

1) Directly contributes to offsite erosion impacts to the project, which result in SCDHEC fines.
2) Directly contributes to offsite erosion impacts to the project.
3) Completes relocation work with significant corrective erosion control measures required and addressed by Utility Company in a timely manner.
4) Completes relocation work with minimal corrective erosion control measures required and addressed by Utility Company in a timely manner.
5) Completes relocation work with no corrective measures required on SCDOT's Erosion Control Report.

Utility Company	Utility Repr.	Rating (1-5)	Relocation Cost
0			
0			
0			
0			
0			
0			
0			
0			

Comments: _____

8) Performs all utility relocation work adhering to SCMUTCD 2003 Edition.
(TRAFFIC IMPACTS)

1) Utility company's failure to correct traffic control deficiencies results in a serious accident on the project.
2) Utility company fails to correct traffic control deficiencies and this results in traffic congestion and delays.
3) Utility Company produces minimal traffic control deficiencies as outlined on SCDOT's Traffic Control Inspection form and corrects them in a timely manner.
4) Completes utility relocation work with no violations noted on SCDOT's Traffic Control Inspection Form.
5) Coordinates utility relocation effort to comply with SCMUTCD as well as lane closure restrictions outlined in the contract to avoid traffic delays.

Utility Company	Utility Repr.	Rating (1-5)	Relocation Cost
0			
0			
0			
0			
0			
0			
0			
0			

Comments: _____

9) Produces a quality-finished product.
(QUALITY FINISH PRODUCT)

1) Produces a finished product that requires major grading/ compaction and dressing by SCDOT contracto
2) Produces a finished product that requires rework or dressing by SCDOT grading contractor.
3) Produces a quality-finished product that requires minimal rework and is addressed by utility in a timely m

4) Produces a quality-finished product that requires no rework.

5) Produces a quality finished product with no rework and performs advanced grading or clearing to expedite relocation effort.

Utility Company	Utility Repr.	Rating (1-5)	Relocation Cost
0			
0			
0			
0			
0			
0			
0			

Comments: _____

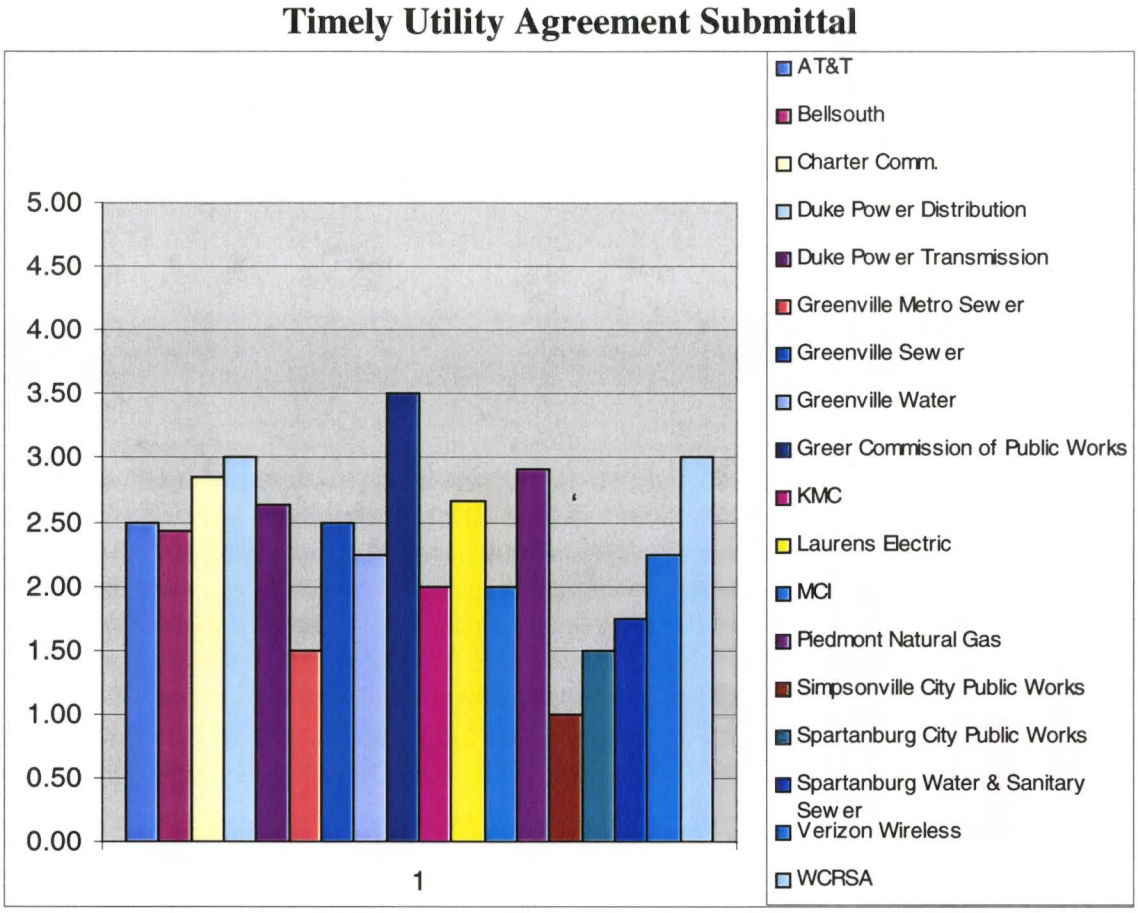
10) Completes utility agreement closeout procedures within requested deadline.
(UTILITY AGREEMENT CLOSEOUT)

1) Utility agreement closeout procedures delay the contract closeout procedures set in place.
2) Completes utility agreement closeout procedures in more than 6 months after utility work is complete.
3) Completes utility agreement closeout procedures in less than 6 months after utility work is complete.
4) Completes utility agreement closeout procedures in less than 3 months after utility work is complete.
5) Completes utility agreement closeout procedures in less than 30 days after utility work is complete.

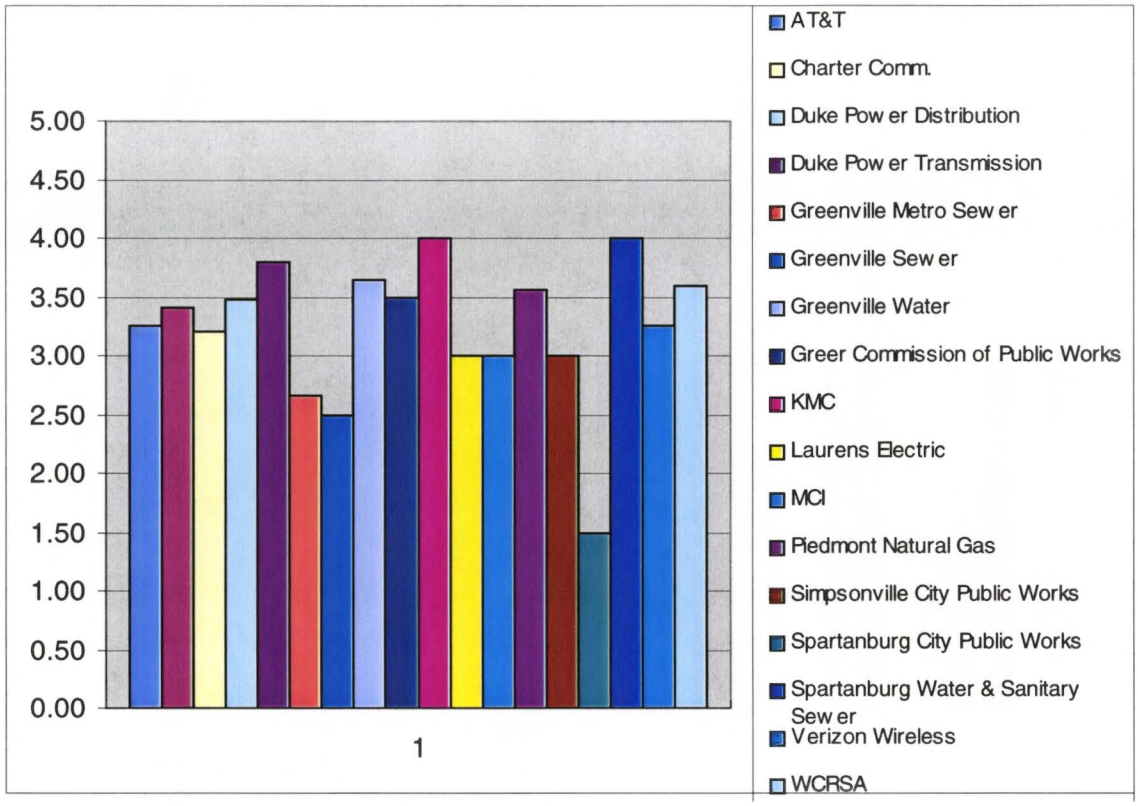
Utility Company	Utility Repr.	Rating (1-5)	Relocation Cost
0			
0			
0			
0			
0			
0			
0			
0			

Comments: _____

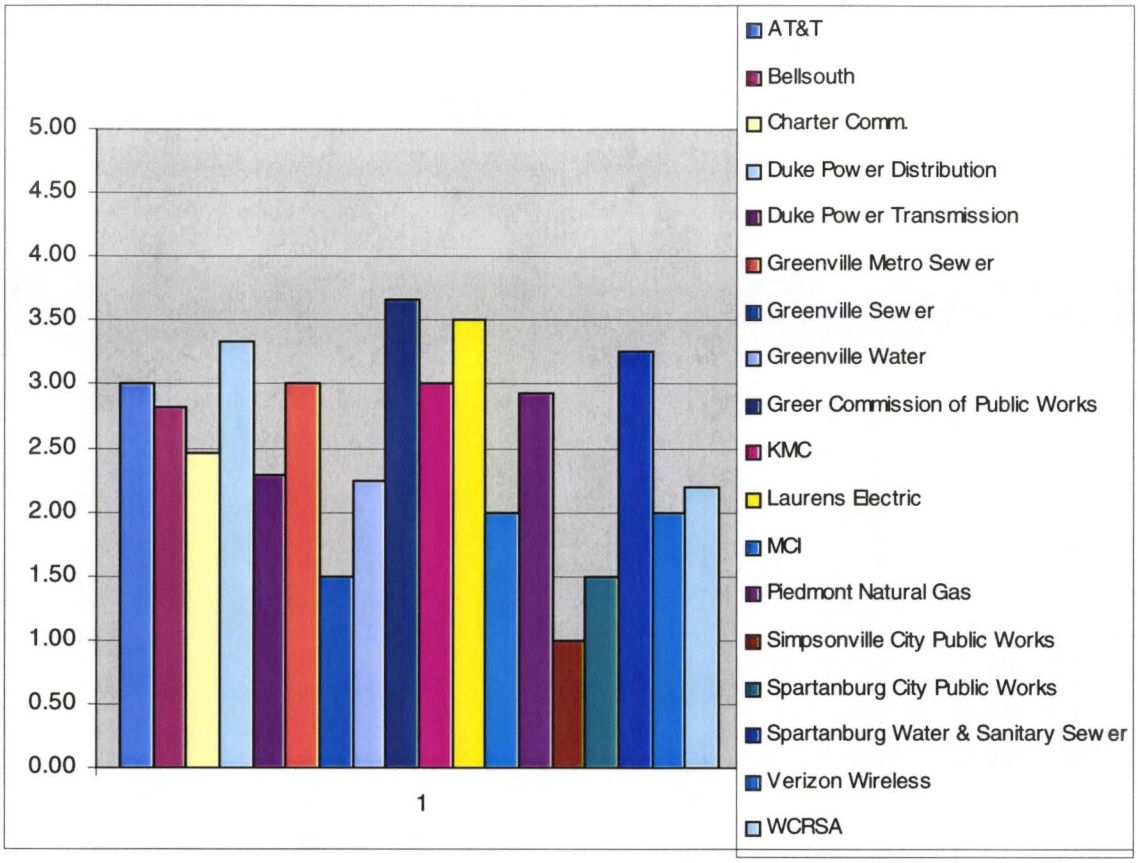
X. APPENDIX B (UTILITY BAR CHART RATINGS)



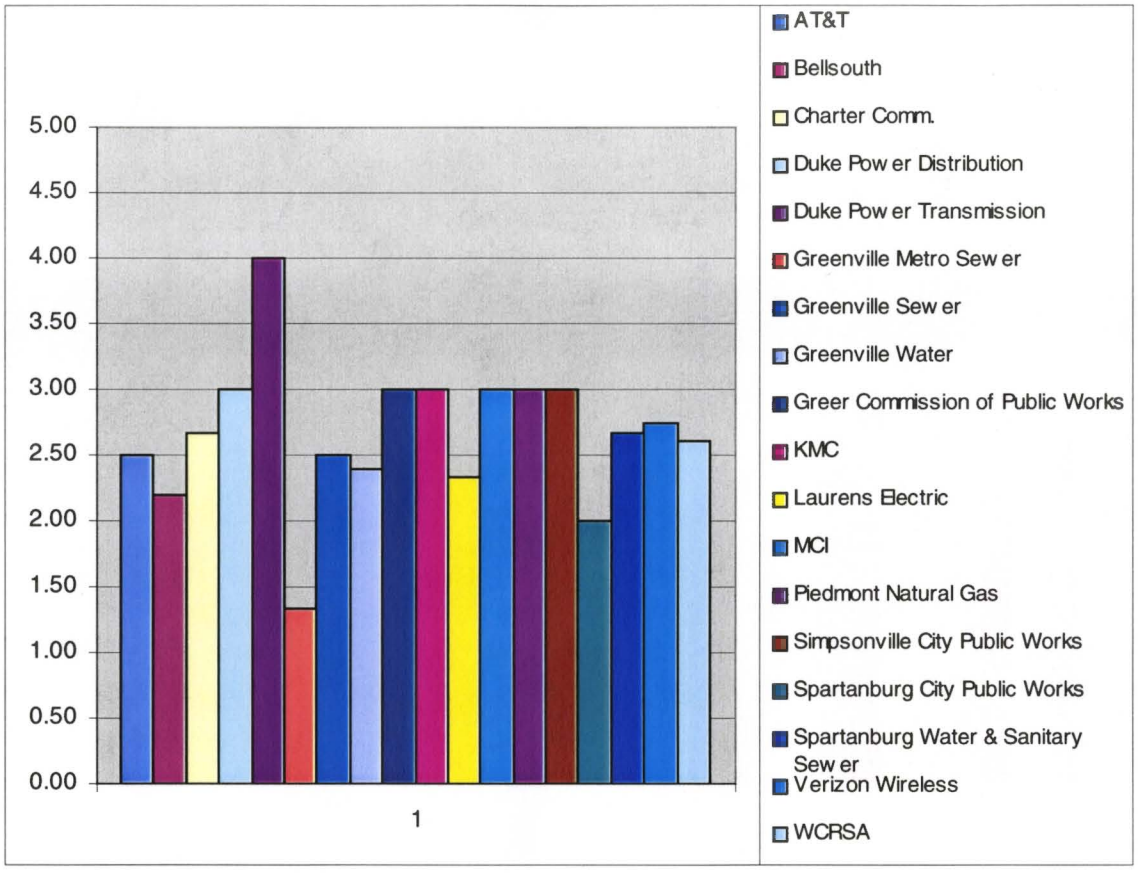
Location of Existing Lines



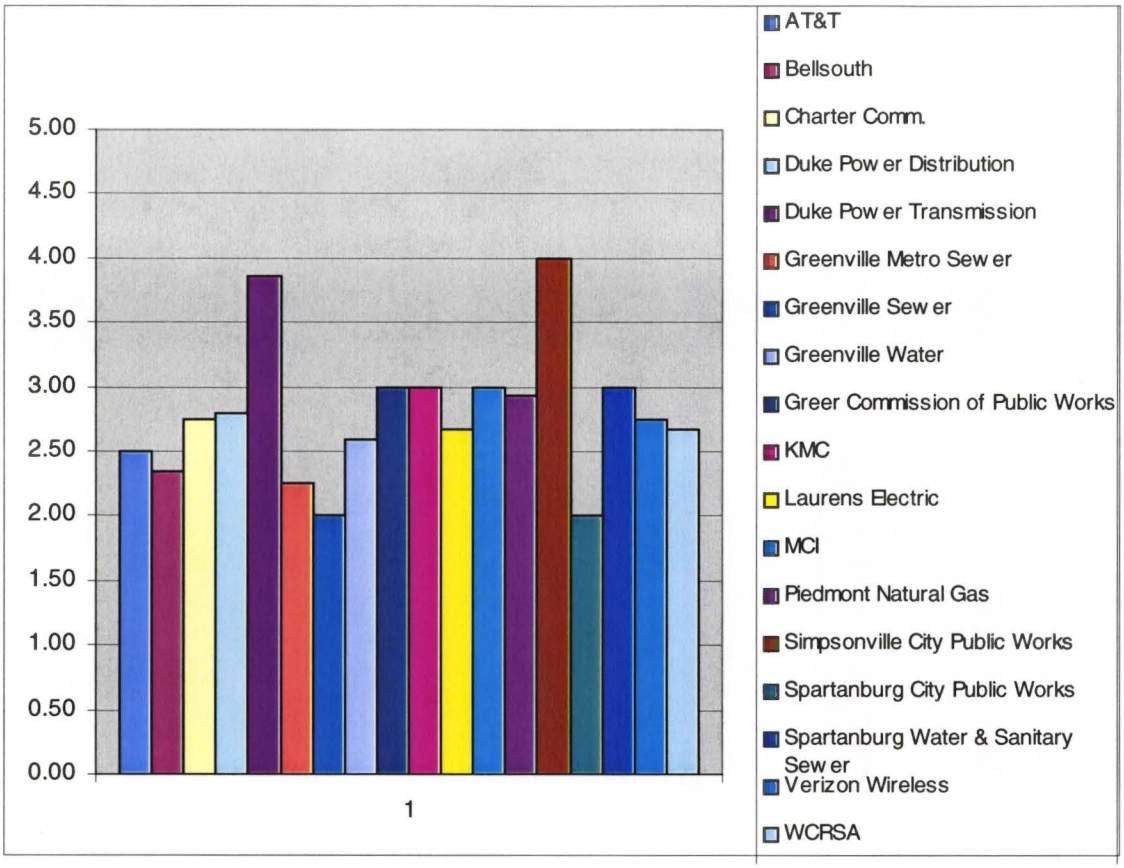
Participation in Partnering



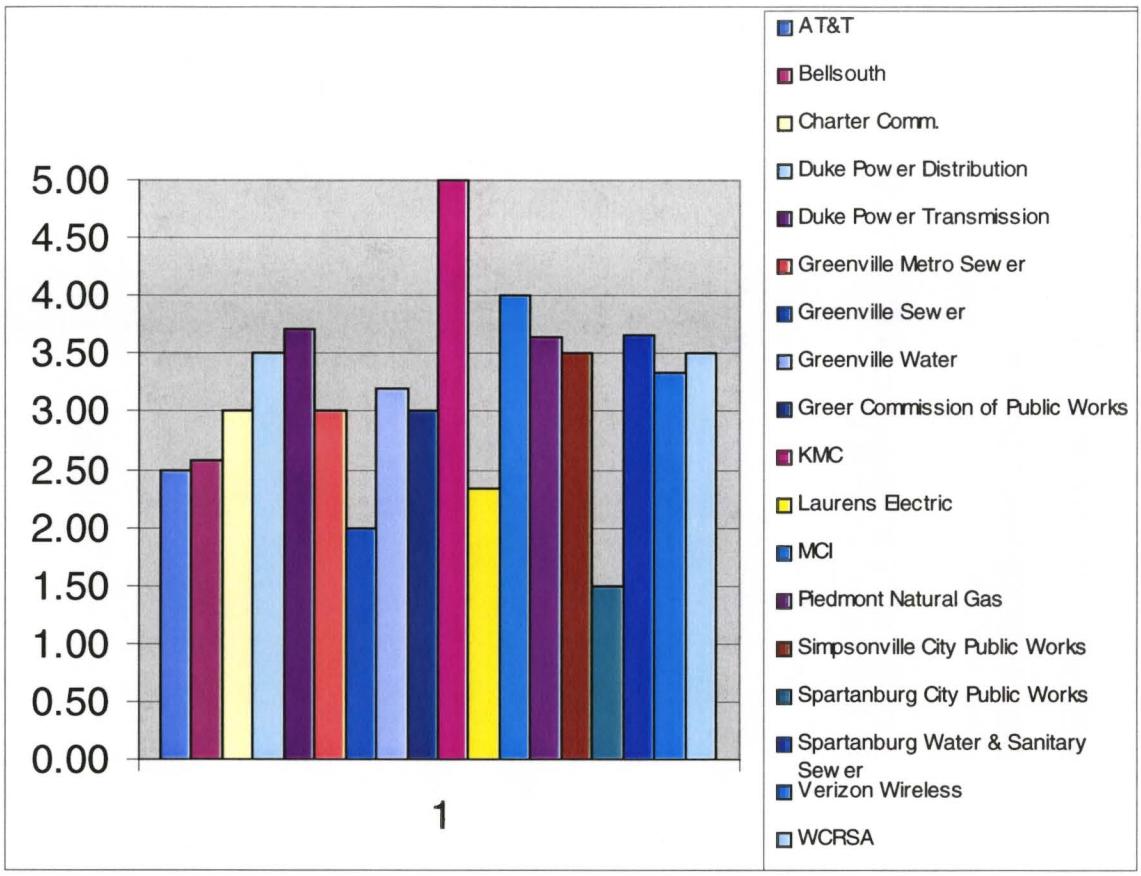
Timely Utility Relocation



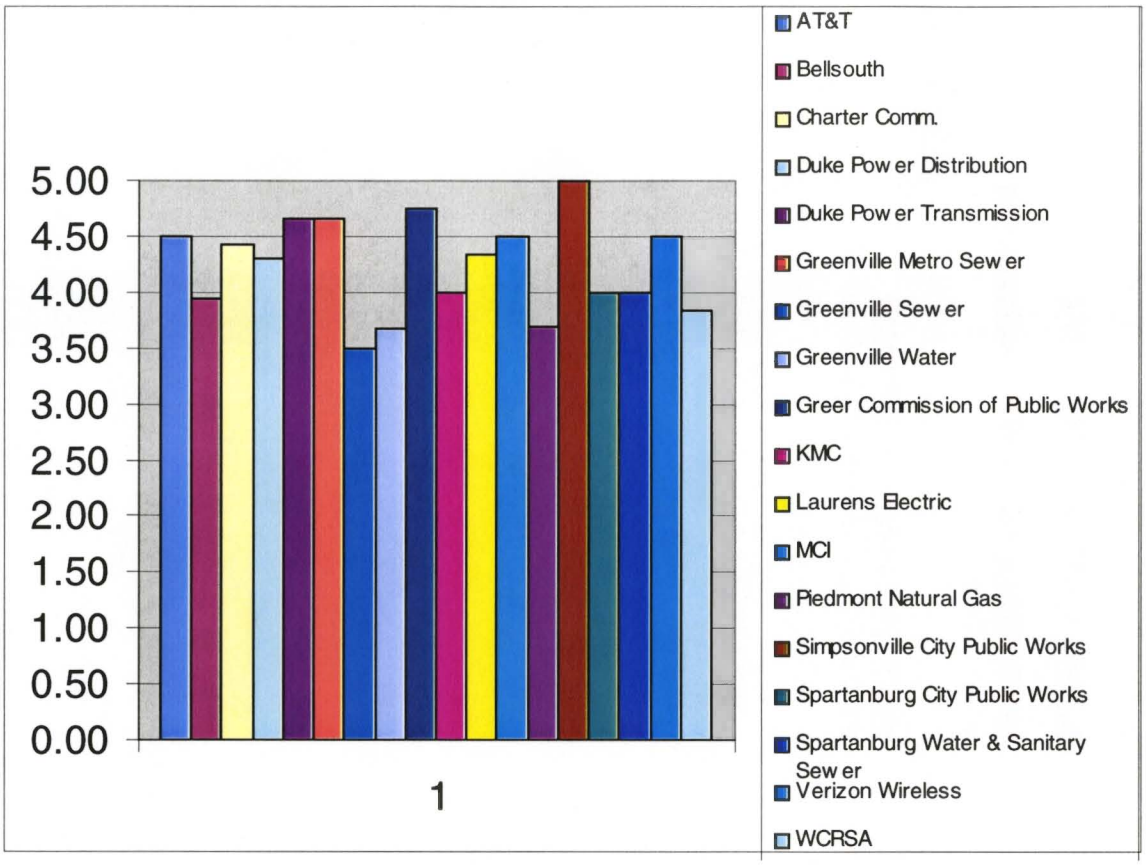
Project Cost Impact



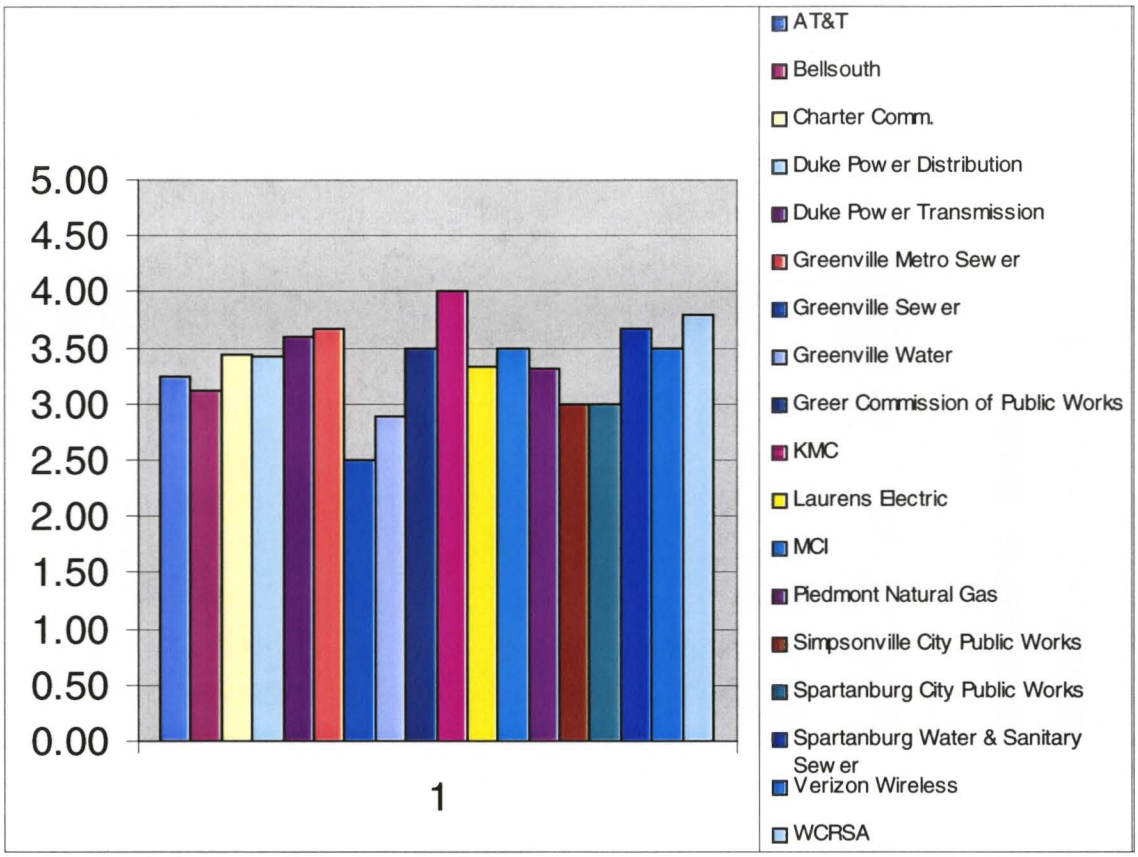
Project Organization



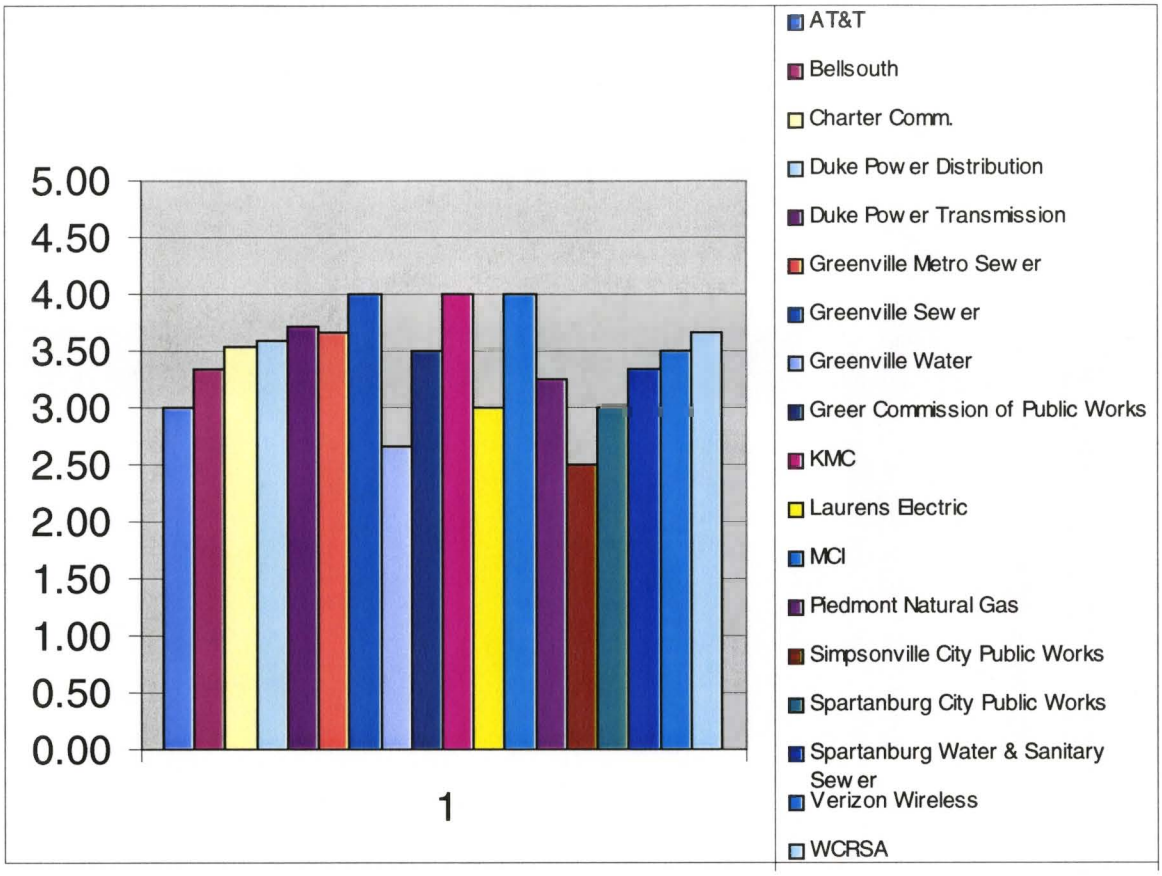
Environmental Impacts



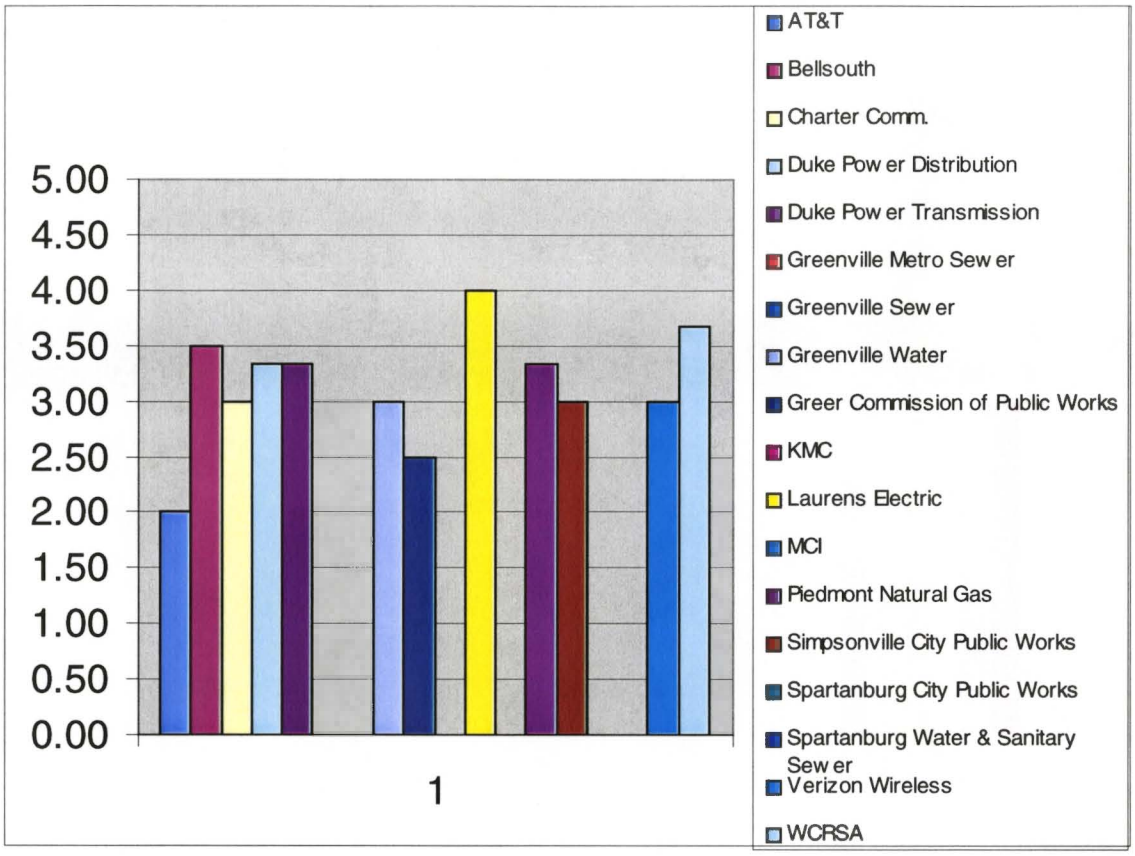
Traffic Impacts



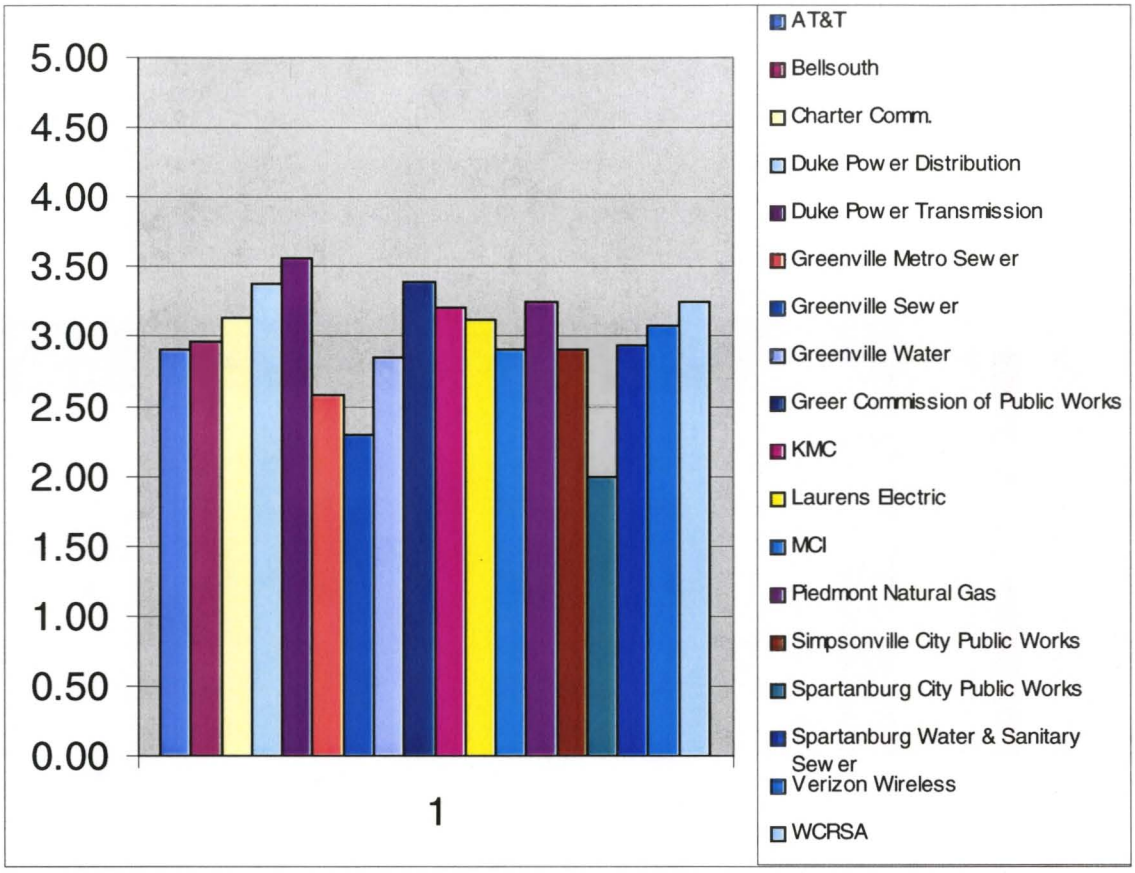
Quality Finish Product



Utility Agreement Closeout



Average Overall Rating



XI. Appendix C (Contractor Questionnaire)

CONTRACTOR QUESTIONNAIRE

1) What are the major obstacles that prevent you from completing projects on time?
What could be done differently to help you get projects completed on time?

2) What obstacles do you need to overcome as a contractor to help you in completing Projects on time?

3) Have you over allocated your resources in the past?
What do you do to prevent yourself from getting in this situation?

4) What method do you use to determine the amount of work you can handle?

5) Evaluate the volume of work available to you as an SCDOT contractor:
Not enough work available through the bidding process
Adequate work is available, no changes needed
Too much work is available right now to keep up with.
Not enough qualified contractors are available at this time.

6) CPM Schedules are now required for all contracts being let statewide.
State your opinion of the CPM Schedule requirements.
Do you follow your CPM schedule while planning your work?
Do the Engineers who plan your work help in preparing your CPM schedule?
Does the CPM schedule software help you plan the best use of your resources?

7) Are adequate personnel available to you as a contractor?

8) Is adequate subcontractor staff available to get projects completed on time?
Are DBE firms available to meet your project goals?

9) Are there any special provisions SCDOT operates under that currently hinder you from completing projects on time?

10) General Comments: